Remarks / Arguments

These remarks are responsive to the final Office Action dated July 9, 2007, and further to the Notice of Appeal filed December 7, 2007. Applicant respectfully requests entry of this Amendment and continued examination of this patent application. Claims 46-50 have been added, no claims have been amended, and no claims have been canceled. No new matter has been added. Claims 20-24 and 26-50 are pending in this application upon entry of the present amendment. Reconsideration and allowance of the instant application are respectfully requested.

Rejections Under 35 U.S.C. § 103

Claims 20-24 and 26-45 stand rejected under 35 U.S.C. §103(a), as being unpatentable over U.S. Patent No. 6,611,519 to Howe (*Howe*), in view of U.S. Patent No. 6,240,084 to Oran et al. (*Oran*). Applicant respectfully traverses.

Independent claims 20, 29, and 37 are respectively directed to method, device, and system of eliminating packet loss at a "packet-switching device," and each recite "scheduling the transmission of the network packets to the packet-switching device." *Howe*, in contrast, describes a layer 1 physical level switching system, which is by definition a distinct type of network communication from packet-switching, which applies to layer 2 or layer 3 network communication. As *Howe* states at column 1, lines 10-15, "The present invention relates in general to network communications switching, and more particularly to synchronizing store-and-forward networks and scheduling real-time or high-priority network transmissions for immediate and direct layer one or physical level switching." (Emphasis added) More specifically, *Howe* only schedules delivery of 'headerless' data, rather than scheduling transmission of network packets to a packet-switching device, as claimed. As seen in FIG. 13 of *Howe*, conventional (non-scheduled) packets are handled by element 100 at the top of the figure, whereas scheduled delivery of data at layer 1 occurs in element 150 (non-blocking non-delaying switch). See *Howe* at col. 31 lines 14-45 and col. 4 lines 27-40 (explaining how this works), and FIG. 47 ("The added efficiency of 'headerless' packets"). Thus, since *Howe* only relates to layer 1 (i.e., physical level) switching, the alleged teachings of *Howe's* system are inapplicable to the elimination of packet loss at a "packet-switching device." *Howe* also fails to teach or suggest, "scheduling the

transmission of the network packets to the packet-switching device," as recited in independent claims 20, 29, and 37.

Furthermore, Applicant submits that the alleged combination of *Howe* with *Oran* is improper. The Office Action states on page 7 that "Howe and Oran are analogous art because they are from the same field of endeavor of real time packet data processing," and therefore it would have been obvious "to modify Howe by using the endpoint cards to process the various signals and sending the digital data over a backplane bus." However, as stated above, *Howe* only describes a switching system which operates on the direct layer 1 (i.e., physical level) of the network, and is thus physically incompatible with the packet-switching system of *Oran* which operates at network layers 2 and 3. Accordingly, the Applicant submits that the combination is improper, and respectfully requests withdrawal of the rejections under 35 U.S.C. §103(a).

Dependent claims 21-24, 26-28, 30-36, and 38-45 are allowable for at least the same reasons as their respective base claims, as well as based on the additional features recited therein. For example, claims 26-27, 34-35, and 43-44 recite "wherein the packet-switching device is a LAN switch." As discussed above, *Howe* only describes a switching system which operates on the physical level (i.e., layer 1) of the network, and does not disclose or suggest any such system which operates within a LAN switch (i.e., layer 3).

New Claims

Applicant has added new claims 46-50 to clarify and more fully claim the invention. While Applicant notes that these new claims have not been rejected, the following remarks are submitted in the interest of expediting prosecution.

Claim 46 recites, "wherein converting the digital data into network packets comprises generating Internet Protocol (IP) or Ethernet packets destined for delivery to the packet-switching device," as is allowable over the alleged combination for at least the same reasons discussed above.

Claim 47 depends from claim 30 and further recites, "wherein the proposed delivery schedule is determined between the packet-switching device and the intended receiving node, without schedule coordination among intermediate network resources." In contrast, in *Howe* the network endpoints do not negotiate the scheduling of packets; the scheduling is instead

performed by all of the intermediate network elements, such as the edge nodes and middle nodes in the network, thus requiring coordination among network switches (See Figs. 2, 3, 4, 37, and 43). Consequently, *Howe* suffers from the disadvantage of requiring complicated and expensive changes to the network architecture in order to carry out packet scheduling, whereas the device of claim 47 involves only coordination between the network endpoints. See also, *Howe* at col. 10 lines 35-50, explaining how intermediate nodes must collectively coordinate their schedules to provide scheduling of packets through the network, and column 4 at lines 27-40 (explaining how all the network devices on the "scheduled" packet path must switch their input and output lines to bypass the standard store-and-forward switches and switch open a direct non-blocking non-delaying layer one physical connection from one end of the network to the other). See also, *Howe* Fig. 35 (steps following "Is this a Call Setup Message?") and Fig. 38 (illustrating criticality of timing among network elements, including accounting for delays).

Claim 48 recites, "wherein each of the plurality of modules is configured to derive its own timing clock individually by referencing the internal timing system via the backplane bus," and claim 49 recites, "wherein scheduling transmission of the network packets comprises configuring the internal timing system to provide software interrupts to the CPU at predetermined time intervals to initiate transmission of said network packets." Neither *Howe* nor *Oran*, alone or in combination, teach or suggest these additional features relating to the internal timing system of the packet-switching device.

Independent claim 50 is directed to a system comprising a plurality of devices for eliminating packet loss and queue overflow at an Ethernet LAN switch, reciting many of the patentable features discussed above, along with several additional patentable features. For example, claim 50 recites, *inter alia*, "(5) detecting the presence of one or more of the other devices in the plurality of devices connected to the device; (6) identifying a designated master device within the plurality of devices; (7) transmitting a query to the designated master device for a transmission map; (8) receiving from the designated master device a system-wide transmission map...; (9) determining a number of required time slots within the system-wide transmission map that are required to transmit the Ethernet packet frames to the intended recipient node; (10) transmitting to the designated master device a proposed transmission map compatible with the system-wide transmission map …;" and "(13) after transmitting the Ethernet

packet frames to the intended receiving node, signaling the designated master device to indicate that no further transmission is required."

For at least these additional reasons, Applicant submits that new claims 46-50 are allowable over the cited references.

CONCLUSION

All rejections having been addressed, Applicant respectfully submits that the instant application is in condition for allowance, and respectfully solicits prompt notification of the same. Should the Examiner find that a telephonic or personal interview would expedite passage to issue of the present application, the Examiner is encouraged to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,

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Dated this 7th day of July, 2008

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